IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| In re Application of: | Kenneth R. Owens, et al. |
| Serial No.: | 09/696,051 |
| Filing Date: | October 25, 2000 |
| Confirmation No.: | 4425 |
| Group Art Unit: | 2616 |
| Examiner: | Bob A. Phunkulh |
| Title: | PROTECTION/RESTORATION OF MPLS NETWORKS |

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

REPLY BRIEF

In response to the Examiner's Answer issued January 11, 2008, Applicant respectfully submits this brief in reply.

## REAL PARTY IN INTEREST

The present Application was assigned to Tellabs Operations, Inc., a Delaware corporation, as indicated by an assignment from the inventors recorded on April 13, 2001 in the Assignment Records of the United States Patent and Trademark Office at Reel 011749, Frames 0584-0592.

## RELATED APPEALS AND INTERFERENCES

There are no known appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

## STATUS OF CLAIMS

Claims 4-6 and 12-29 stand rejected pursuant to a Final Action issued September 25, 2006. Claims 4-6 and 12-29 are all presented for appeal. Claims 1-3 and 7-11 have been canceled without prejudice or disclaimer.

## STATUS OF AMENDMENTS

An Amendment was filed on July 1, 2004 in response to an Office Action issued March 1, 2004. Claims 1-6 were amended and Claims 7-20 were added. A Request for Continued Examination was filed on May 4, 2005 in response to a Final Action February 4, 2005. Claims 1, 4, 6, and 12 were amended. An Amendment was filed on September 2, 2005 in response to an Office Action issued June 2, 2005. Claims 1 and 6 were amended. A Notice of Appeal and Request for Pre-Appeal Brief Review were filed on January 9, 2006 in response to a Final Action issued November 8, 2005. Prosecution was reopened pursuant to a Notice of Panel Decision from Pre-Appeal Brief Review issued March 27, 2006. An Amendment was filed on July 13, 2006 in response to an Office Action issued March 16, 2006. Claims 4, 6, 12, and 17-20 were amended, Claims 21-29 were added, and Claims 1-3 and 7-11 were canceled. A Notice of Appeal and Request for Pre-Appeal Brief Review were filed on November 29, 2006 in response to a Final Action issued September 25, 2006. A Notice of Panel Decision from Pre-Appeal Brief Review issued on January 17, 2007 stating that the appeal is to proceed to the Board of Patent Appeals and Interferences.

SUMMARY OF CLAIMED SUBJECT MATTER

With respect to Independent Claim 4, a multi-protocol label switching (MPLS) system protection switch (1) 102 is provided. (See FIGURE 1 and page 7, lines 4-8). Protection switch (1) 102 includes a first data input port into which MPLS data is received from a data source. (See FIGURE 7). Protection switch (1) 102 includes a first data output port into which MPLS data is sent to a second MPLS switching system (2) 104 comprising an MPLS working path L12 -L67 (See FIGURE 1 and page 21, lines 9-13). Protection switch (1) 102 includes a second data output port from which MPLS data is sent to a third MPLS switching system (5) 120 comprising an MPLS protection path P25-P57. (See FIGURE 1 and page 21, lines 9-13). Protection switch (1) 102 includes a second data input port adapted to connect to a path R21-R76 that follows the MPLS working path L12-L67 for receiving a failure notification associated with a failure. (See FIGURE 1 and page 27, lines 1-8). Data received at the data input port from the data source can be selectively routed from the second MPLS switching system (2) 104 to the third MPLS switching system (5) 120 by a node at an origin of both the MPLS working path L12-L67 and the MPLS protection path P25-P57 and upstream to the failure. (See FIGURE 1 and page 27, lines 14-17).

With respect to Independent Claim 6, a multi-protocol label switching (MPLS) system is provided. (See FIGURE 1 and page 7, lines 4-8). The system includes a first MPLS protection switch (1) 102 having a data input port into which MPLS data is received from a data source. (See FIGURE 7). A second MPLS switching system (2) 104 is coupled to the first MPLS protection switch (1) 102 via a first data path L12 carrying MPLS data. (See FIGURE 1 and page 21, lines 9-13). The first data path L12 comprises an MPLS working path L12-

L67. (See FIGURE 7). A third MPLS switching system (5) 120 is coupled to the first MPLS protection switch (1) 102 via a second data path P25 capable of carrying MPLS data. (See FIGURE 1 and page 21, lines 9-13). The second data path P25 comprises an MPLS protection path P25-P57. (See FIGURE 7). An upstream reverse notification tree (RNT) data path R21-R76 follows the MPLS working path L12-L67 and extends at least between the second MPLS switching system (2) 104 to the first MPLS protection switch (1) 102. (See FIGURE 1 and page 27, lines 1-4). Upon a failure, the RNT data path R21-R76 can carry a failure notification by which in response to the failure a switchover from the MPLS working path L12-L67 to the MPLS protection path P25-P57, by a node at an origin of the MPLS working path L12-L67 and the MPLS protection path P25-P57, can be initiated. (See FIGURE 1 and page 27, lines 14-17).

With respect to Independent Claim 12, a method for MPLS protection switching from a working path L12-L67 to a protection path P25-P57 is provided. (See FIGURE 1 and page 7, lines 4-8). The method includes transmitting a failure notification associated with a failure to a protection switch node (1) 102 along a path R21-R76 that follows the working path L12-L67. (See FIGURE 1 and page 27, lines 2-3). Data is routed at the protection switch node (1) 102 from the working path L12-L67 to the protection path P25-P57 upon receipt of the failure notification. (See FIGURE 1 and page 27, lines 14-17). The protection switch node (1) 102 is at an origin of the working path L12-L67 and the protection path P25-P57 and the protection switch node (1) 102 is upstream to the failure. (See FIGURE 1 and page 4, lines 5-8).

With respect to Independent Claim 21, an apparatus for MPLS protection switching from a working path L12-L67 to a

protection path P25-P57 is provided. (See FIGURE 1 and page 7, lines 4-8). The apparatus includes a failure notification relay mechanism 102-112 adapted to transmit a failure notification along at least one segment R21 of a path R21-R76 that follows the working path L12-L67, upon a failure along the working path L12-L67. (See FIGURE 1 and page 27, lines 2-3). A protection switch (1) 102 is adapted to switch traffic from the working path L12-L67 to the protection path P25-P57 upon receiving the failure notification. (See FIGURE 1 and page 27, lines 14-17). The protection switch (1) 102 is at an origin of the working path L12-L67 and the protection path P25-P57. (See FIGURE 1 and page 4, lines 5-8).

## GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 4-6 and 12-29 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,721,269 issued to Cao, et al.

ARGUMENT

1. Claims 4-6 and 12-29 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,721,269 issued to Cao, et al. To anticipate a claim under 35 U.S.C. §102(e), a single prior art reference must teach each and every limitation as set forth in the claims. Since the cited prior art reference does not teach each and every element set forth in the claims, Applicant respectfully traverses this rejection.

Independent Claim 4 recites ". . . a second data input port adapted to connect to a path that follows the MPLS working path for receiving a failure notification associated with a failure; whereby data received at the data input port from the data source can be selectively routed from the second MPLS switching system to the third MPLS switching system by a node at an origin of both the MPLS working path and the MPLS protection path and upstream to the failure." Independent Claim 6 recites ". . . an upstream reverse notification tree (RNT) data path that follows the MPLS working path and extends at least between the second MPLS switching system to the first MPLS protection switch, that upon a failure can carry a failure notification by which in response to the failure a switchover from the MPLS working path to the MPLS protection path, by a node at an origin of the MPLS working path and the MPLS protection path, can be initiated." Independent Claim 21 recites ". . . a failure notification relay mechanism adapted to transmit a failure notification along at least one segment of a path that follows the working path, upon a failure along the working path; and a protection switch adapted to switch traffic from the working path to the protection path upon receiving the failure notification, wherein the protection switch is at an origin of the working and protection paths."

By contrast, the Cao, et al. application performs protection switching at its downstream egress router by transmitting the same data along two different paths and allowing the downstream egress router to choose one of the paths as its primary source. Throughout its specification, the Cao, et al. patent teaches away from switching by a node at an origin of both a working path and a protection path and upstream to a failure. The Cao, et al. patent discloses a source router that establishes a plurality of explicitly routed paths between a data source and a sink router. (See col. 4, lines 40-44, and col. 10, lines 9-14, of the Cao, et al. patent). The Cao, et al. patent specifically discloses that the sink router selects one of these explicitly routed paths as the primary path. (See col. 4, lines 44-46, of the Cao, et al. patent). The Cao, et al. patent discloses that the sink router selects a secondary path upon failure of the primary path. (See col. 3, lines 40-42, and col. 10, lines 9-14, of the Cao, et al. patent). By providing data onto two paths, the upstream source router of the Cao, et al. patent fails to selectively route data from a second switching system to a third switching system as required in the claimed invention. In addition, the upstream source router of the Cao, et al. patent does not receive any failure notification that triggers the selective routing let alone on a path that follows the working path as provided by the claimed invention. Thus, there is no controlling of protection switching by an upstream switch, no receipt of a failure notification at the upstream switch on a path that follows the working path, and no selective routing in response to the failure notification disclosed anywhere in the Cao, et al. patent.

In the Examiner's Answer, the Examiner cites a portion of the Cao, et al. patent where a router detecting a failure

propagates the failure information to a source and sink router. In response to the failure information, the sink router switches to the secondary path for traffic communications. (See col. 3, lines 53-55, of the Cao, et al. patent). The source router merely establishes another secondary path to send another copy of the traffic to the sink router. (See col. 3, lines 55-57, of the Cao, et al. patent). The protection switching is always done by the sink router. On the other hand, the claimed invention is directed to performing protection switching at a node where the working path and protection path originates upstream of the failure. Each of Independent Claims 4, 6, 12, and 21 recite the feature of protection switching being performed at an origin of the working and protection paths. The Cao, et al. patent explicitly teaches that protection switching is performed at its sink router. The source router merely sends two copies of the traffic along two paths. If one path fails, the source router merely sends a new second copy along a new path. The source router does not switch from a working path to a protection path. The sink router selects which path to use. (See col. 10, lines 9-14, of the Cao, et al. patent). Thus, no protection switching occurs at the source router of the Cao, et al. patent. Moreover, there is no disclosure in the Cao, et al. patent as to how the failure information is propagated to the source and sink routers. The claimed invention provides for the failure notification to be provided along a path that follows the working path and, in Claim 6, specifically travels upstream along the working path. The Cao, et al. patent fails to disclose such a feature. In addition, the failure notification triggers the switching at the sink router in the Cao, et al. patent. The failure notification only tells the source router that a new path may

be established for the transport of the second copy of the traffic. Therefore, the Cao, et al. patent fails to anticipate the claimed invention.

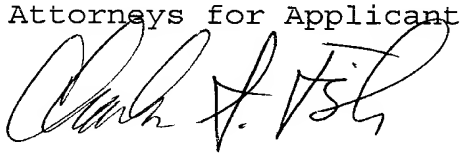
Based on the above remarks, the Cao, et al. patent teaches away from an upstream protection switching scheme according to the claimed invention through its downstream protection selection technique. As a result, the Cao, et al. patent fails to teach each and every limitation of the claimed invention and is thus insufficient to support a rejection under 35 U.S.C. §102(e).

## CONCLUSION

Applicant has clearly demonstrated that the present invention as claimed is clearly distinguishable over all the art cited of record, either alone or in combination, and satisfies all requirements under 35 U.S.C. §§101, 102, and 103, and 112. Therefore, Applicant respectfully requests the Board of Patent Appeals and Interferences to reverse the final rejection of the Examiner and instruct the Examiner to issue a Notice of Allowance of all pending claims.

The Commissioner is hereby authorized to charge any fees or credit any overpayments associated with this Application to Deposit Account No. 02-0384 of BAKER BOTTS L.L.P.

Respectfully submitted,
BAKER BOTTS L.L.P.
Attorneys for Applicant



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CLAIMS APPENDIX

1. (Canceled).

2. (Canceled).

3. (Canceled).

4. (Previously Presented) A multi-protocol label switching (MPLS) system protection switch comprising:

a first data input port into which MPLS data is received from a data source;

a first data output port into which MPLS data is sent to a second MPLS switching system comprising an MPLS working path;

a second data output port from which MPLS data is sent to a third MPLS switching system comprising an MPLS protection path; and

a second data input port adapted to connect to a path that follows the MPLS working path for receiving a failure notification associated with a failure;

whereby data received at the data input port from the data source can be selectively routed from the second MPLS switching system to the third MPLS switching system by a node at an origin of both the MPLS working path and the MPLS protection path and upstream to the failure.

5. (Previously Presented) The MPLS switching system of Claim 4 further comprising a control input port where protection path failure messages are received from at least one of the second MPLS switching system and the third MPLS switching system.

6. (Previously Presented) A multi-protocol label switching (MPLS) system comprising:

a first MPLS protection switch having a data input port into which MPLS data is received from a data source;

a second MPLS switching system coupled to the first MPLS protection switch via a first data path carrying MPLS data, the first data path comprising an MPLS working path;

a third MPLS switching system coupled to the first MPLS protection switch via a second data path capable of carrying MPLS data, the second data path comprising an MPLS protection path;

an upstream reverse notification tree (RNT) data path that follows the MPLS working path and extends at least between the second MPLS switching system to the first MPLS protection switch, that upon a failure can carry a failure notification by which in response to the failure a switchover from the MPLS working path to the MPLS protection path, by a node at an origin of the MPLS working path and the MPLS protection path, can be initiated.

7. (Canceled).

8. (Canceled).

9. (Canceled).

10. (Canceled).

11. (Canceled).

12. (Previously Presented) A method for MPLS protection switching from a working path to a protection path comprising:

transmitting a failure notification associated with a failure to a protection switch node along a path that follows the working path; and

routing data at the protection switch node from the working path to the protection path upon receipt of the failure notification, wherein the protection switch node is at an origin of the working path and the protection path and the protection switch node is upstream to the failure.

13. (Previously Presented) The method of Claim 12, wherein the failure notification is transmitted in a direction reverse to the working path.

14. (Previously Presented) The method of Claim 12, wherein the path that follows the working path mirrors the working path.

15. (Previously Presented) The method of Claim 12, further comprising detecting a failure.

16. (Previously Presented) The method of Claim 12, wherein the failure notification is transmitted by a node upstream to the failure.

17. (Previously Presented) The method of Claim 12, wherein the failure is an uplink failure and is detected by a node upstream to the failure.

18. (Previously Presented) The method of Claim 12, wherein the failure is a downlink failure and is detected by a node downlink to the failure.

19. (Previously Presented) The method of Claim 12, wherein the failure is a bi-directional failure and is detected by a pair of nodes downlink and uplink to the failure.

20. (Previously Presented) The method of Claim 12, wherein the failure is a node failure and is detected by a pair of nodes downlink and uplink to the failure.

21. (Previously Presented) An apparatus for MPLS protection switching from a working path to a protection path comprising:

a failure notification relay mechanism adapted to transmit a failure notification along at least one segment of a path that follows the working path, upon a failure along the working path; and

a protection switch adapted to switch traffic from the working path to the protection path upon receiving the failure notification, wherein the protection switch is at an origin of the working and protection paths.

22. (Previously Presented) The apparatus of Claim 21, further comprising a failure detection mechanism adapted to detect the failure and transmit the failure notification along the at least one segment of the path that follows the working path.

23. (Previously Presented) The apparatus of Claim 21, wherein the failure notification relay mechanism is adapted to allow the transmission of the failure notification in a reverse direction of the working path.

24. (Previously Presented) The apparatus of Claim 21, wherein the path that follows the working path mirrors the working path.

25. (Previously Presented) The apparatus of Claim 22, wherein the failure detection mechanism is at a node upstream to the failure.

26. (Previously Presented) The apparatus of Claim 22, wherein the failure is an uplink failure and the failure detection mechanism is at a node upstream to the failure.

27. (Previously Presented) The apparatus of Claim 22, wherein the failure is a downlink failure and the failure detection mechanism is at a node downlink to the failure.

28. (Previously Presented) The apparatus of Claim 22, wherein the failure is a bi-directional failure and the failure detection mechanism is at a pair of nodes downlink and uplink to the failure.

29. (Previously Presented) The apparatus of Claim 22, wherein the failure is a node failure and the failure detection mechanism is at a pair of nodes downlink and uplink to the failure.

## EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None

CERTIFICATE OF SERVICE

None